

**ABSTRACT**

The invention provides methods of generating angiostatin *in vitro* comprising contacting plasminogen with a plasminogen activator and a sulfhydryl donor or contacting plasmin with a sulfhydryl donor. The invention also provides a method of treating angiogenic diseases by administering to an animal suffering from such a disease a sulfhydryl donor, a plasminogen activator, or a combination of a sulfhydryl donor and a plasminogen activator. The invention further comprises a composition for generating angiostatin comprising a sulfhydryl donor and a plasminogen activator. The invention also provides a container holding a sulfhydryl donor and/or a plasminogen activator, said container having a label thereon instructing administration of the sulfhydryl donor and/or plasminogen activator to an animal suffering from an angiogenic disease. The invention further provides plasminogen fragments whose N-terminal amino acid is the same as that of plasmin and whose C-terminal amino acid is located in kringle 5 and which inhibit angiogenesis, antibodies which bind selectively to these fragments, methods and kits for using the antibodies, methods and materials for making the fragments by recombinant DNA techniques, and a method of treating an angiogenic disease comprising administering an effective amount of one of the fragments. Finally, the invention provides a method of treating an angiogenic disease comprising administering a transgene coding for one of the fragments.